CLAIMS

1. A method comprising:

determining a received signal quality value from received packets;

determining a packet loss indicator value from transmitted packets; and

selecting a data rate in response to the received signal quality value and the packet loss indicator value.

2. The method of claim 1, wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones.

3. The method of claim 1, wherein the packet loss indicator value is selected from a retry counter value, a bit-error update value, a packet error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value.

4. The method of claim 1, wherein said selecting comprises selecting a data rate from a plurality of available data rates.

5. The method of claim 1, further comprising:

generating a confidence value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value.

6. The method of claim 5, further comprising:

generating an adjustment value for the received signal quality value from the packet loss indicator value.

7. The method of claim 6, wherein the received signal quality value comprises an RSSI value, and

wherein the adjustment value comprises a Δ_{RSSI} value.

8. The method of claim 7, further comprising:

generating an average received signal strength indicator ($RSSI_{avg}$) value.

9. The method of claim 8, wherein said generating the confidence value comprises solving the equation:

$$Confidence[j] = RSSI_{avg} - RSSI_{TH}[j] - \Delta_{RSSI} ,$$

where $RSSI_{TH}[j]$ comprises a nominal received signal strength value associated with a data rate [j] in a table.

10. The method of claim 9, wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value.

11. The method of claim 9, wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value.

12. The method of claim 6, further comprising:

updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions.

13. The method of claim 6, further comprising:

updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions.

14. The method of claim 1, further comprising:

increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and

decreasing the transmit power in response to the selected data rate exceeding a second data rate.

15. The method of claim 14, wherein the second data rate is greater than the first data rate.

16. The method of claim 1, further comprising:

decreasing the selected data rate in response to the packet loss indicator value increasing.

17. The method of claim 16, wherein said decreasing comprises decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values.

18. The method of claim 1, further comprising:

selecting a second data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value.

19. An apparatus comprising:

a transceiver including

a transmit section operative to transmit packets and to determine a packet loss indicator value,

a receive section operative to receive packets and to determine a signal quality value from said received packets, and

a rate selector operative to select a data rate in response to the received signal quality value and the packet loss indicator value.

20. The apparatus of claim 19, wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones.

21. The apparatus of claim 19, wherein the packet loss indicator value is selected from a retry counter value, a bit-error update value, a packet error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value.

22. The apparatus of claim 19, further comprising:

a table including a plurality of available data rates, each available data rate associated with a nominal received signal quality value.

23. The apparatus of claim 19, wherein the rate selector is further operative to generate a confidence value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value.

24. The apparatus of claim 23, further comprising:

a retry processor operative to generate an adjustment value for the received signal quality value from the packet loss indicator value.

25. The apparatus of claim 24, wherein the received signal quality value comprises an RSSI value, and

wherein the adjustment value comprises a Δ_{RSSI} value.

26. The apparatus of claim 25, further comprising a filter to generate an average received signal strength indicator ($RSSI_{avg}$) value.

27. The apparatus of claim 26, wherein the rate selector is further operative to generate the confidence value by solving the equation:

$Confidence[j] = RSSI_{avg} - RSSI_{TH}[j] - \Delta_{RSSI}$,

where $RSSI_{TH}[j]$ comprises a nominal received signal strength value associated with a data rate [j] in a table.

28. The apparatus of claim 27, wherein the rate selector is operative to select a data rate associated with a positive confidence value.

29. The apparatus of claim 27, wherein the rate selector is operative to select a data rate associated with a lowest positive confidence value.

30. The apparatus of claim 24, further comprising a state machine operative to monitor the packet loss indicator value and determine whether a current data rate causes an excessive number of failed packet transmissions or an excessive number of successful packet transmissions.

31. The apparatus of claim 24, wherein the rate selector is further operative to update the adjustment

value in response to an output of the state machine indicating that the current data rate causes an excessive number of failed packet transmissions or an excessive number of successful packet transmissions.

32. The apparatus of claim 19, further comprising:

a power adaptor operative to increasing a transmit power of the transmit section in response to the selected data rate falling below a first data rate and to decrease the transmit power in response to the selected data rate exceeding a second data rate.

33. The apparatus of claim 32, wherein the second data rate is greater than the first data rate.

34. The apparatus of claim 19, wherein the rate selector is further operative to decrease the selected data rate in response to the packet loss indicator value increasing.

35. The apparatus of claim 34, further comprising a table indexed by available data rates and packet loss indicator values, and

wherein the rate selector is operative to decrease the selected data rate in response to data rate values in said table.

36. The apparatus of claim 19, wherein the rate selector is further operative to select a second data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value.

37. An apparatus comprising:

a transceiver including

a transmit section including

means for transmitting packets, and

means for determining a packet loss indicator value,

a receive section including

means for receiving packets, and

means for determining a signal quality value from said received packets, and

means for selecting a data rate in response to the received signal quality value and the packet loss indicator value.

38. The apparatus of claim 37, wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones.

39. The apparatus of claim 37, wherein the packet loss indicator value is selected from a retry counter value, a bit-error update value, a packet error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value.

40. The apparatus of claim 37, further comprising:

a table including a plurality of available data rates, each available data rate associated with a nominal received signal quality value.

41. The apparatus of claim 37, further comprising:

means for generating a confidence value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value.

42. The apparatus of claim 41, further comprising:

means for generating an adjustment value for the received signal quality value from the packet loss indicator value.

43. The apparatus of claim 42, wherein the received signal quality value comprises an RSSI value, and

wherein the adjustment value comprises a Δ_{RSSI} value.

44. The apparatus of claim 43, further comprising:

means for generating an average received signal strength indicator ($RSSI_{avg}$) value.

45. The apparatus of claim 44, further comprising:

means for generating the confidence value by solving the equation:

$$Confidence[j] = RSSI_{avg} - RSSI_{TH}[j] - \Delta_{RSSI},$$

where $RSSI_{TH}[j]$ comprises a nominal received signal strength value associated with a data rate [j] in a table.

46. The apparatus of claim 45, further comprising:

means for selecting a data rate associated with a positive confidence value.

47. The apparatus of claim 45, further comprising:

means for selecting a data rate associated with a lowest positive confidence value.

48. The apparatus of claim 42, further comprising:

means for monitoring the packet loss indicator value; and

means for determining whether a current data rate causes an excessive number of failed packet transmissions or an excessive number of successful packet transmissions.

49. The apparatus of claim 42, further comprising:

updating the adjustment value in response to an output of the state machine indicating that the current data rate causes an excessive number of failed packet transmissions or an excessive number of successful packet transmissions.

50. The apparatus of claim 37, further comprising:

means for increasing a transmit power of the transmit section in response to the selected data rate falling below a first data rate and to decrease the transmit power in response to the selected data rate exceeding a second data rate.

51. The apparatus of claim 50, wherein the second data rate is greater than the first data rate.

52. The apparatus of claim 37, further comprising:

means for decreasing the selected data rate in response to the packet loss indicator value increasing.

53. The apparatus of claim 52, further comprising:

a table indexed by available data rates and packet loss indicator values; and

means for decreasing the selected data rate in response to data rate values in said table.

54. The apparatus of claim 37, further comprising:

selecting a second data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value.

55. A computer program comprising:

determining a received signal quality value from received packets;

determining a packet loss indicator value from transmitted packets; and

selecting a data rate in response to the received signal quality value and the packet loss indicator value.

56. The computer program of claim 55 wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones.

57. The computer program of claim 55, wherein the packet loss indicator value is selected from a retry counter value, a bit-error update value, a packet error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value.

58. The computer program of claim 55, wherein said selecting comprises selecting a data rate from a plurality of available data rates.

59. The computer program of claim 55, further comprising:

generating a confidence value for each of a plurality available data rates using the received signal quality value and the packet loss indicator value.

60. The computer program of claim 59, further comprising:

generating an adjustment value for the received signal quality value from the packet loss indicator value.

61. The computer program of claim 60, wherein the received signal quality value comprises an RSSI value, and

wherein the adjustment value comprises a Δ_{RSSI} value.

62. The computer program of claim 61, further comprising:

generating an average received signal strength indicator ($RSSI_{avg}$) value.

63. The computer program of claim 62, wherein said generating the confidence value comprises solving the equation:

$$Confidence[j] = RSSI_{avg} - RSSI_{TH}[j] - \Delta_{RSSI} ,$$

where $RSSI_{TH}[j]$ comprises a nominal received signal strength value associated with a data rate [j] in a table.

64. The computer program of claim 63 wherein said selecting the data rate comprises selecting a data rate associated with a positive confidence value.

65. The computer program of claim 63, wherein said selecting the data rate comprises selecting a data rate associated with a lowest positive confidence value.

66. The computer program of claim 60, further comprising:

updating the adjustment value in response to the packet loss indicator value indicating a maximum failure value corresponding to an excessive number of failed packet transmissions.

67. The computer program of claim 60, further comprising:

updating the adjustment value in response to the packet loss indicator value indicating a maximum success value corresponding to an excessive number of success packet transmissions.

68. The computer program of claim 55, further comprising:

increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and

decreasing the transmit power in response to the selected data rate exceeding a second data rate.

69. The computer program of claim 68, wherein the second data rate is greater than the first data rate.

70. The computer program of claim 55, further comprising:

decreasing the selected data rate in response to the packet loss indicator value increasing.

71. The computer program of claim 70, wherein said decreasing comprises decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values.

72. The computer program of claim 55, further comprising:

selecting a second data rate value directly from the packet loss indicator value in response to the received

signal quality value falling below a minimum signal quality value.

73. The method of claim 1, wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications.

74. The apparatus of claim 19, wherein the packets are transmitted and received in compliance with one of the IEEE 802.11 family of specifications.

75. The apparatus of claim 37, wherein the packets are transmitted and received in compliance with one of the IEEE 802.11 family of specifications.

76. The computer program of claim 55, wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications.